```
atg agt aat aaa aac gtc aat gta agg aaa tcg cag gaa ata aca t.c      48
Met Ser Asn Lys Asn Val Asn Val Arg Lys Ser Gln Glu Ile Thr P e
 1               5                  10                 15

tgc ttg ctg gca ggt atc ctg atg ttc atg gca atg atg gtt gcc g a      96
Cys Leu Leu Ala Gly Ile Leu Met Phe Met Ala Met Met Val Ala Gly
             20                 25                 30

cgc gct gaa gcg gga gtg gcc tta ggt gcg act cgc gta att tat ccg     144
Arg Ala Glu Ala Gly Val Ala Leu Gly Ala Thr Arg Val Ile Tyr Pro
         35                 40                 45

gca ggg caa aaa caa gtg caa ctt gcc gtg aca aat aat gat gaa aat     192
Ala Gly Gln Lys Gln Val Gln Leu Ala Val Thr Asn Asn Asp Glu Asn
     50                 55                 60

agt acc tat tta att caa tca tgg gtg gaa aat gcc gat ggt gta aag     240
Ser Thr Tyr Leu Ile Gln Ser Trp Val Glu Asn Ala Asp Gly Val Lys
 65                 70                 75                 80

gat ggt cgt ttt atc gtg acg cct cct ctg ttt gcg atg aag gga aaa     288
Asp Gly Arg Phe Ile Val Thr Pro Pro Leu Phe Ala Met Lys Gly Lys
                 85                 90                 95

aaa gag aat acc tta cgt att ctt gat gca aca aat aac caa ttg cca     336
Lys Glu Asn Thr Leu Arg Ile Leu Asp Ala Thr Asn Asn Gln Leu Pro
            100                105                110

cag gac cgg gaa agt tta ttc tgg atg aac gtt aaa gcg att ccg tca     384
Gln Asp Arg Glu Ser Leu Phe Trp Met Asn Val Lys Ala Ile Pro Ser
        115                120                125

atg gat aaa tca aaa ttg act gag aat acg cta cag ctc gca att a.c     432
Met Asp Lys Ser Lys Leu Thr Glu Asn Thr Leu Gln Leu Ala Ile Ile
    130                135                140

agc cgc att aaa ctg tac tat cgc ccg gct aaa tta gcg ttg cca c c     480
Ser Arg Ile Lys Leu Tyr Tyr Arg Pro Ala Lys Leu Ala Leu Pro P o
145                150                155                1 0

gat cag gcc gca gaa aaa tta aga ttt cgt cgt agc gcg aat tct c g     528
Asp Gln Ala Ala Glu Lys Leu Arg Phe Arg Ser Ala Asn Ser L u
            165                170                175

acg ctg att aac ccg aca ccc tat tac ctg acg gta aca gag ttg a t     576
Thr Leu Ile Asn Pro Thr Pro Tyr Tyr Leu Thr Val Thr Glu Leu A n
        180                185                190

gcc gga acc cgg gtt ctt gaa aat gca ttg gtg cct cca atg ggc g a     624
Ala Gly Thr Arg Val Leu Glu Asn Ala Leu Val Pro Pro Met Gly G u
    195                200                205

agc acg gtt aaa ttg cct tct gat gca gga agc aat att act tac c a     672
Ser Thr Val Lys Leu Pro Ser Asp Ala Gly Ser Asn Ile Thr Tyr A g
    210                215                220

aca ata aat gat tat ggc gca ctt acc ccc aaa atg acg ggc gta a g     720
Thr Ile Asn Asp Tyr Gly Ala Leu Thr Pro Lys Met Thr Gly Val M t
225                230                235                2 0

gaa taa                                                             726
Glu
```

Figure 1A

```
Met Ser Asn Lys Asn Val Asn Val Arg Lys Ser Gln Glu Ile Thr Phe
 1               5                  10                  15
Cys Leu Leu Ala Gly Ile Leu Met Phe Met Ala Met Met Val Ala Gly
            20                  25                  30
Arg Ala Glu Ala Gly Val Ala Leu Gly Ala Thr Arg Val Ile Tyr Pro
        35                  40                  45
Ala Gly Gln Lys Gln Val Gln Leu Ala Val Thr Asn Asn Asp Glu Asn
    50                  55                  60
Ser Thr Tyr Leu Ile Gln Ser Trp Val Glu Asn Ala Asp Gly Val Lys
65                  70                  75                  80
Asp Gly Arg Phe Ile Val Thr Pro Pro Leu Phe Ala Met Lys Gly Lys
                85                  90                  95
Lys Glu Asn Thr Leu Arg Ile Leu Asp Ala Thr Asn Asn Gln Leu Pro
               100                 105                 110
Gln Asp Arg Glu Ser Leu Phe Trp Met Asn Val Lys Ala Ile Pro Ser
       115                 120                 125
Met Asp Lys Ser Lys Leu Thr Glu Asn Thr Leu Gln Leu Ala Ile Ile
   130                 135                 140
Ser Arg Ile Lys Leu Tyr Tyr Arg Pro Ala Lys Leu Ala Leu Pro Pro
145                 150                 155                 160
Asp Gln Ala Ala Glu Lys Leu Arg Phe Arg Arg Ser Ala Asn Ser Leu
                165                 170                 175
Thr Leu Ile Asn Pro Thr Pro Tyr Tyr Leu Thr Val Thr Glu Leu Asn
                180                 185                 190
Ala Gly Thr Arg Val Leu Glu Asn Ala Leu Val Pro Pro Met Gly Glu
       195                 200                 205
Ser Thr Val Lys Leu Pro Ser Asp Ala Gly Ser Asn Ile Thr Tyr Arg
   210                 215                 220
Thr Ile Asn Asp Tyr Gly Ala Leu Thr Pro Lys Met Thr Gly Val Met
225                 230                 235                 240
Glu
```

Figure 1B

```
atg aaa cga gtt att acc ctg ttt gct gta ctg ctg atg ggc tgg tcg      48
Met Lys Arg Val Ile Thr Leu Phe Ala Val Leu Leu Met Gly Trp Ser
    -20              -15              -10

gta aat gcc tgg tca ttc gcc tgt aaa acc gcc aat ggt acc gct atc      96
Val Asn Ala Trp Ser Phe Ala Cys Lys Thr Ala Asn Gly Thr Ala Ile
-5              -1  1                  5                  10

cct att ggc ggt ggc agc gcc aat gtt tat gta aac ctt gcg ccc gtc     144
Pro Ile Gly Gly Gly Ser Ala Asn Val Tyr Val Asn Leu Ala Pro Val
                15                  20                  25

gtg aat gtg ggg caa aac ctg gtc gtg gat ctt tcg acg caa atc ttt     192
Val Asn Val Gly Gln Asn Leu Val Val Asp Leu Ser Thr Gln Ile Phe
            30                  35                  40

tgc cat aac gat tat ccg gaa acc att aca gac tat gtc aca ctg caa     240
Cys His Asn Asp Tyr Pro Glu Thr Ile Thr Asp Tyr Val Thr Leu Gln
        45                  50                  55

cga ggc tcg gct tat ggc ggc gtg tta tct aat ttt tcc ggg acc gta     288
Arg Gly Ser Ala Tyr Gly Gly Val Leu Ser Asn Phe Ser Gly Thr Val
 60                  65                  70                  75

aaa tat agt ggc agt agc tat cca ttt cct acc acc agc gaa acg ccg     336
Lys Tyr Ser Gly Ser Ser Tyr Pro Phe Pro Thr Thr Ser Glu Thr Pro
                80                  85                  90

cgc gtt gtt tat aat tcg aga acg gat aag ccg tgg ccg gtg gcg ctt     384
Arg Val Val Tyr Asn Ser Arg Thr Asp Lys Pro Trp Pro Val Ala Leu
                95                 100                 105

tat ttg acg cct gtg agc agt gcg ggc ggg gtg gcg att aaa gct ggc     432
Tyr Leu Thr Pro Val Ser Ser Ala Gly Gly Val Ala Ile Lys Ala Gly
        110                 115                 120

tca tta att gcc gtg ctt att ttg cga cag acc aac aac tat aac agc     480
Ser Leu Ile Ala Val Leu Ile Leu Arg Gln Thr Asn Asn Tyr Asn Ser
        125                 130                 135

gat gat ttc cag ttt gtg tgg aat att tac gcc aat aat gat gtg gtg     528
Asp Asp Phe Gln Phe Val Trp Asn Ile Tyr Ala Asn Asn Asp Val Val
140                 145                 150                 155

gtg cct act ggc ggc tgc gat gtt tct gct cgt gat gtc acc gtt act     576
Val Pro Thr Gly Gly Cys Asp Val Ser Ala Arg Asp Val Thr Val Thr
                160                 165                 170

ctg ccg gac tac cct ggt tca gtg cca att cct ctt acc gtt tat tgt     624
Leu Pro Asp Tyr Pro Gly Ser Val Pro Ile Pro Leu Thr Val Tyr Cys
            175                 180                 185
```

Figure 1C

```
gcg aaa agc caa aac ctg ggg tat tac ctc tcc ggc aca acc gca cat      672
Ala Lys Ser Gln Asn Leu Gly Tyr Tyr Leu Ser Gly Thr Thr Ala Asp
            190                 195                 200

gcg ggc aac tcg att ttc acc aat acc gcg tcg ttt tca cct gca cag      720
Ala Gly Asn Ser Ile Phe Thr Asn Thr Ala Ser Phe Ser Pro Ala Gln
    205                 210                 215

ggc gtc ggc gta cag ttg acg cgc aac ggt acg att att cca gcg aat      768
Gly Val Gly Val Gln Leu Thr Arg Asn Gly Thr Ile Ile Pro Ala Asn
220                 225                 230                 235

aac acg gta tcg tta gga gca gta ggg act tcg gcg gtg agt ctg gga      816
Asn Thr Val Ser Leu Gly Ala Val Gly Thr Ser Ala Val Ser Leu Gly
                240                 245                 250

tta acg gca aat tat gca cgt acc gga ggg cag gtg act gca ggg aat      864
Leu Thr Ala Asn Tyr Ala Arg Thr Gly Gly Gln Val Thr Ala Gly Asn
                255                 260                 265

gtg caa tcg att att ggc gtg act ttt gtt tat caa taa                  903
Val Gln Ser Ile Ile Gly Val Thr Phe Val Tyr Gln
            270                 275
```

Figure 1C (Cont'd)

```
Met Lys Arg Val Ile Thr Leu Phe Ala Val Leu Leu Met Gly Trp Ser
    -20                     -15                     -10
Val Asn Ala Trp Ser Phe Ala Cys Lys Thr Ala Asn Gly Thr Ala Ile
-5              -1  1                   5                       10
Pro Ile Gly Gly Gly Ser Ala Asn Val Tyr Val Asn Leu Ala Pro Val
            15                  20                  25
Val Asn Val Gly Gln Asn Leu Val Val Asp Leu Ser Thr Gln Ile Phe
        30                  35                  40
Cys His Asn Asp Tyr Pro Glu Thr Ile Thr Asp Tyr Val Thr Leu Gln
    45                  50                  55
Arg Gly Ser Ala Tyr Gly Gly Val Leu Ser Asn Phe Ser Gly Thr Val
60              65                  70                      75
Lys Tyr Ser Gly Ser Ser Tyr Pro Phe Pro Thr Thr Ser Glu Thr Pro
            80                  85                  90
Arg Val Val Tyr Asn Ser Arg Thr Asp Lys Pro Trp Pro Val Lys Ala Leu
        95                  100                 105
Tyr Leu Thr Pro Val Ser Ser Ala Gly Gly Val Ala Ile Lys Ala Gly
        110                 115                 120
Ser Leu Ile Ala Val Leu Ile Leu Arg Gln Thr Asn Asn Tyr Asn Ser
    125                 130                 135
Asp Asp Phe Gln Phe Val Trp Asn Ile Tyr Ala Asn Asn Asp Val Val
140             145                 150                     155
Val Pro Thr Gly Gly Cys Asp Val Ser Ala Arg Asp Val Thr Val Thr
                160                 165                 170
Leu Pro Asp Tyr Pro Gly Ser Val Pro Ile Pro Leu Thr Val Tyr Cys
            175                 180                 185
Ala Lys Ser Gln Asn Leu Gly Tyr Tyr Leu Ser Gly Thr Thr Ala Asp
        190                 195                 200
Ala Gly Asn Ser Ile Phe Thr Asn Thr Ala Ser Phe Ser Pro Ala Gln
    205                 210                 215
Gly Val Gly Val Gln Leu Thr Arg Asn Gly Thr Ile Ile Pro Ala Asn
220             225                 230                     235
Asn Thr Val Ser Leu Gly Ala Val Gly Thr Ser Ala Val Ser Leu Gly
                240                 245                 250
Leu Thr Ala Asn Tyr Ala Arg Thr Gly Gly Gln Val Thr Ala Gly Asn
            255                 260                 265
Val Gln Ser Ile Ile Gly Val Thr Phe Val Tyr Gln
        270                 275
```

Figure 1D

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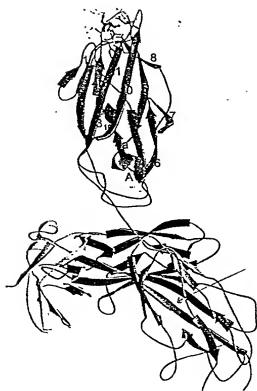
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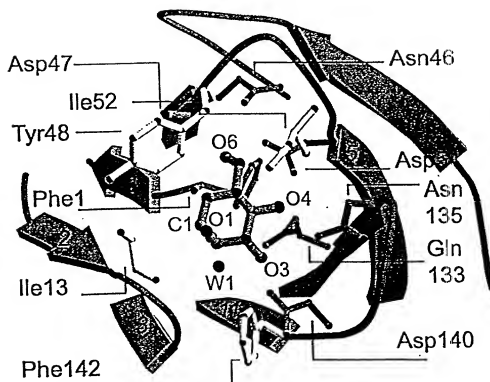
Figure 2
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Figure 2
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Figure 2
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Figure 3
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Figure 4
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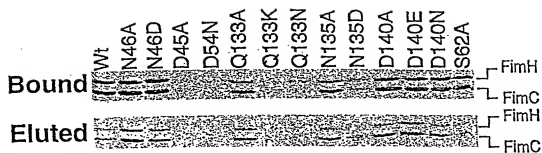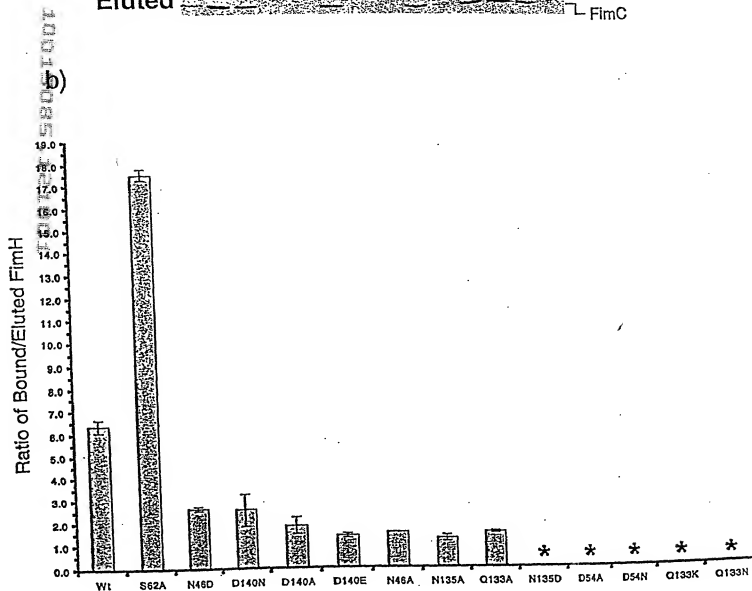
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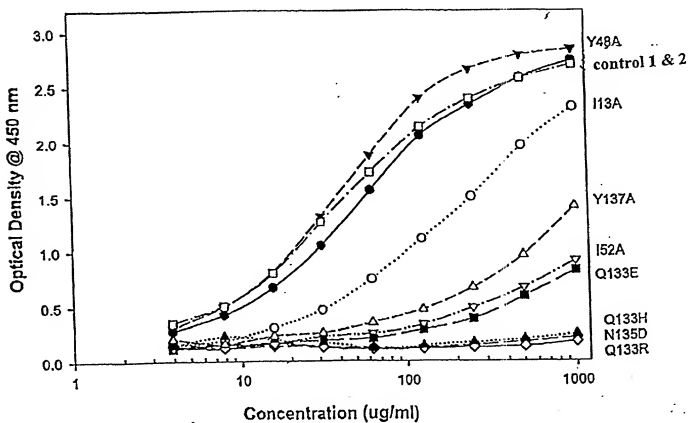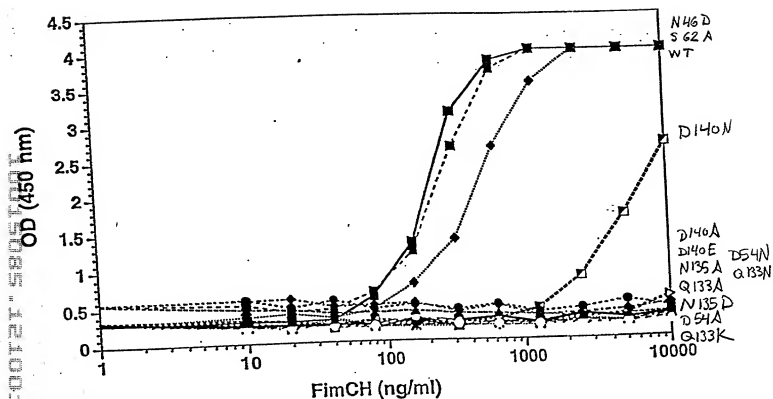
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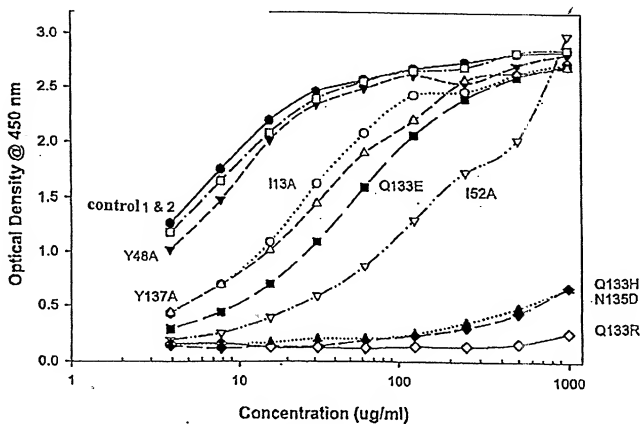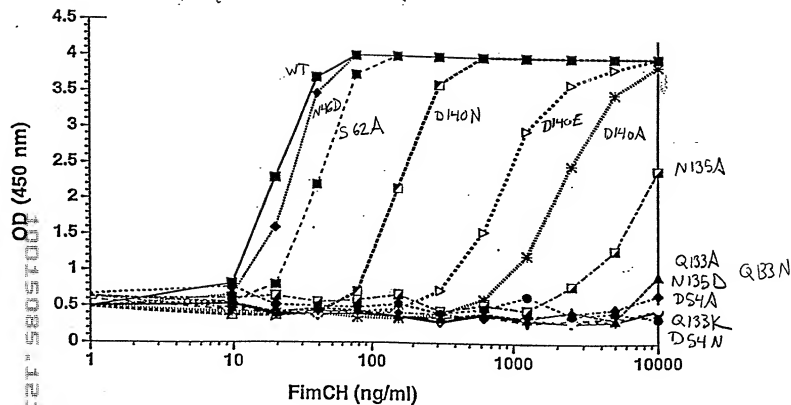
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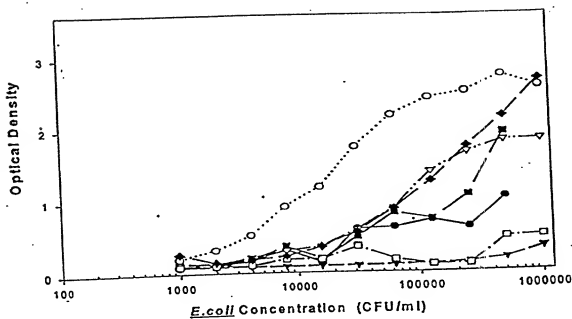
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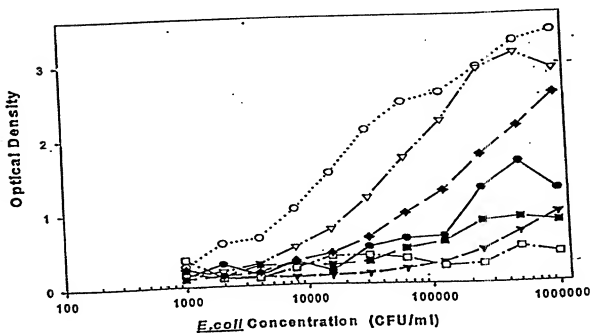
Figure 7
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C

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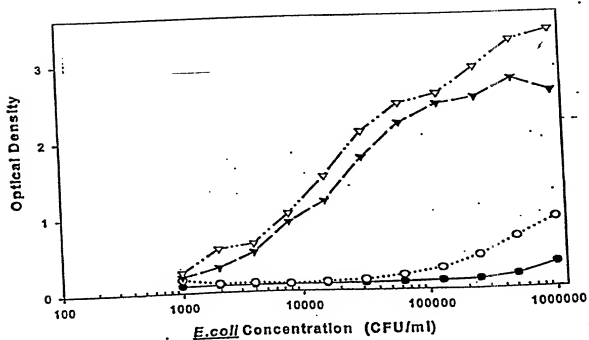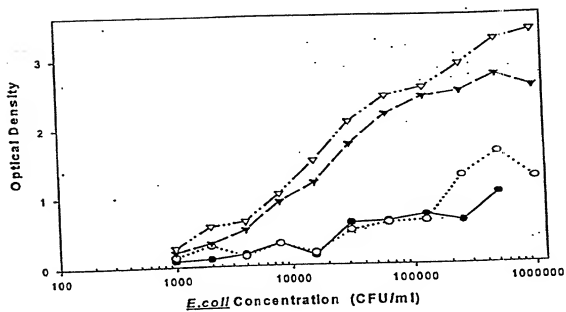
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E

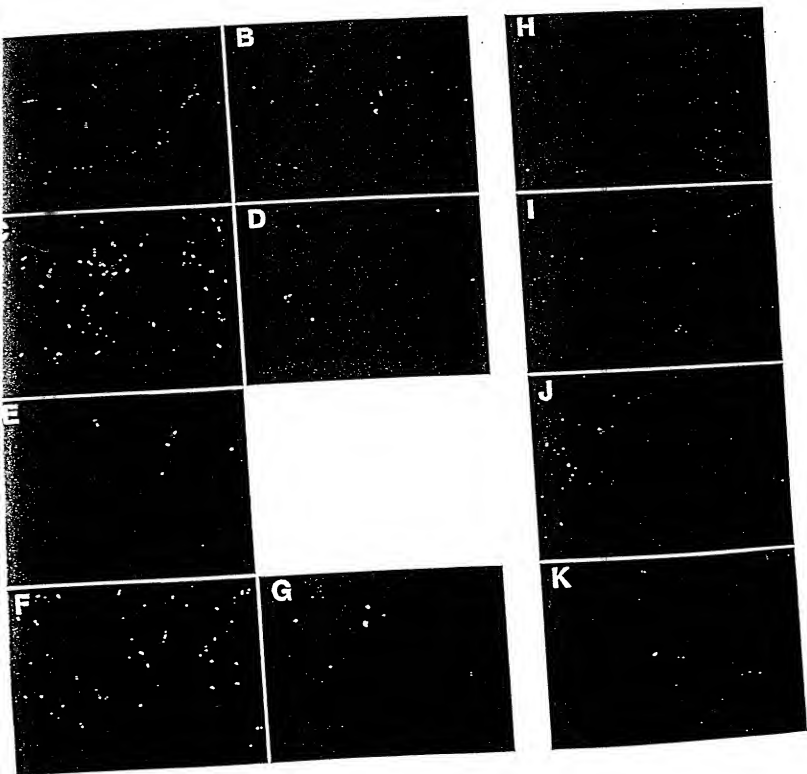
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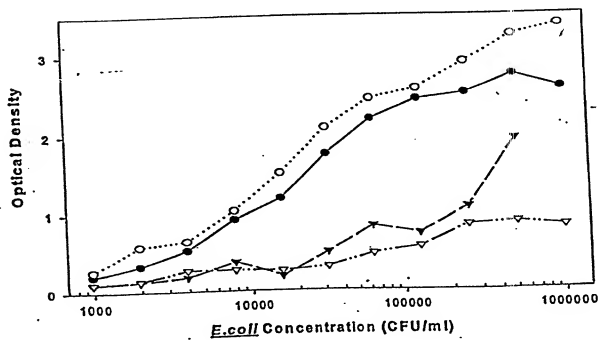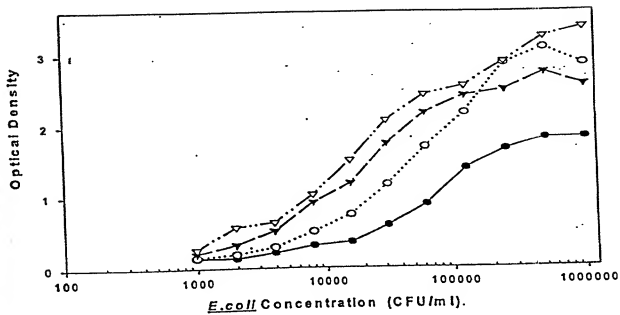
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G

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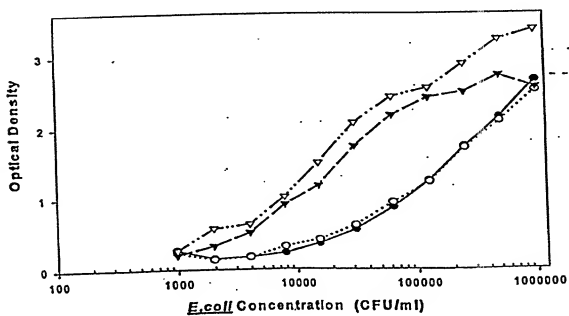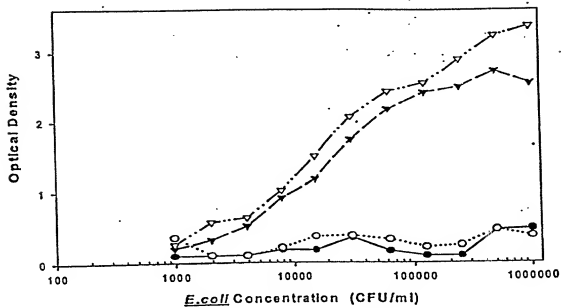
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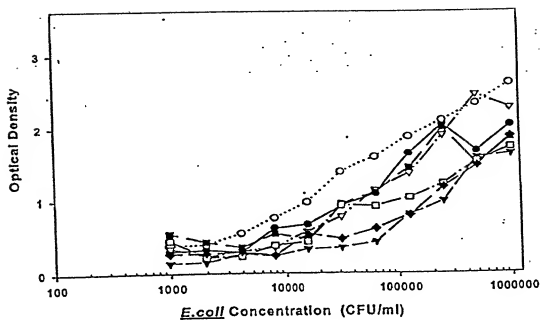
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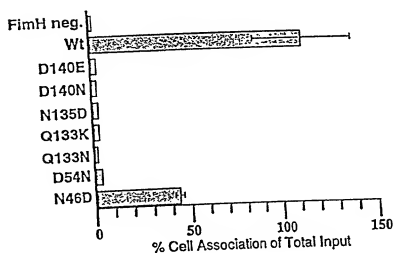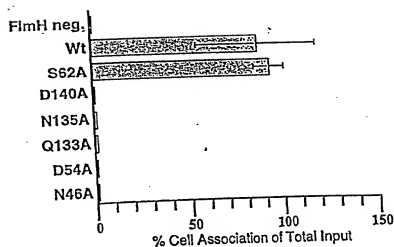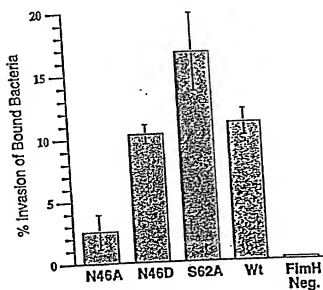
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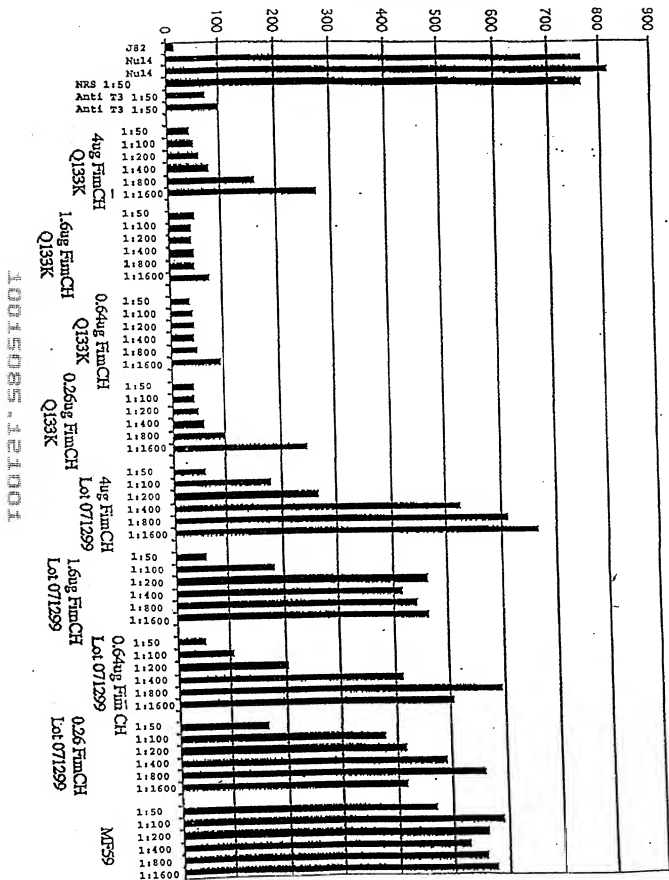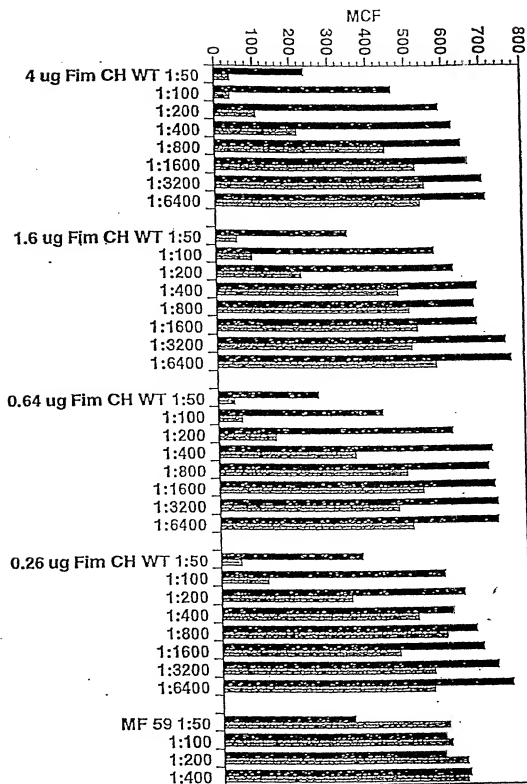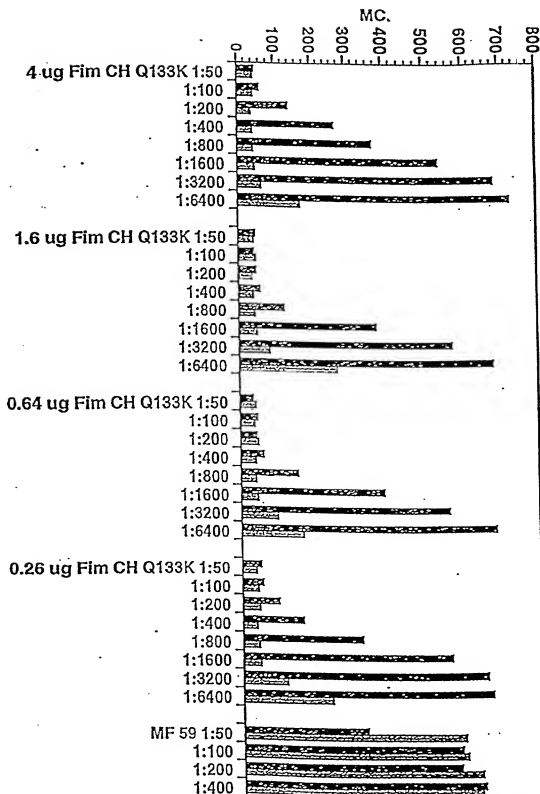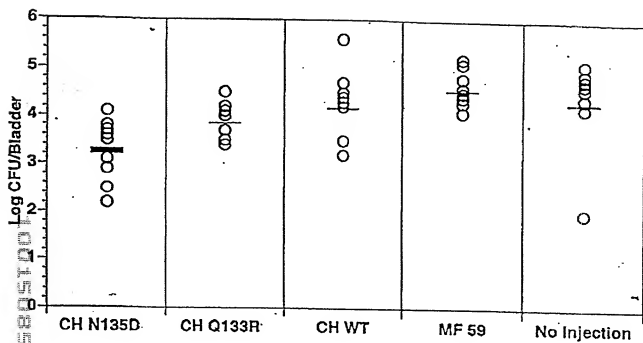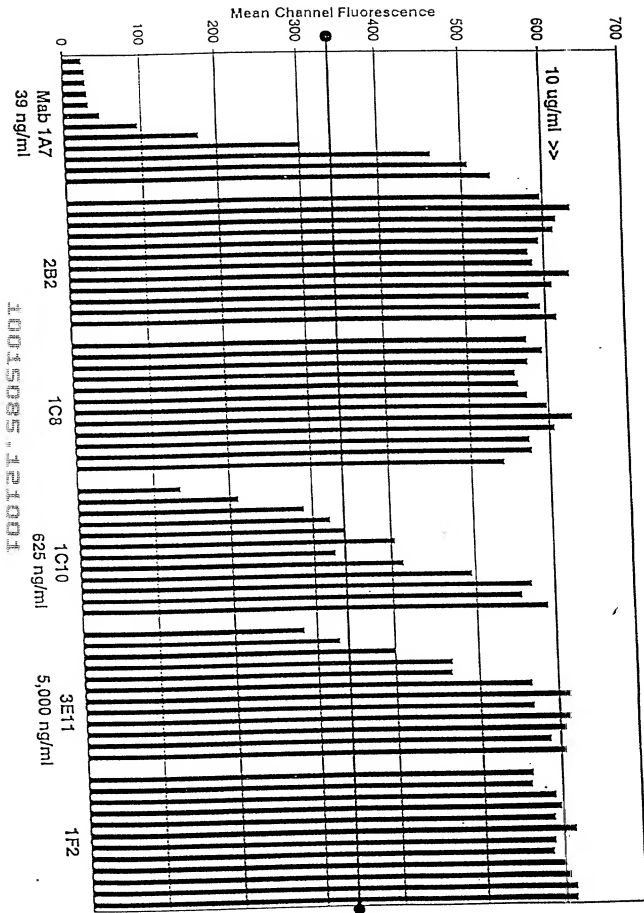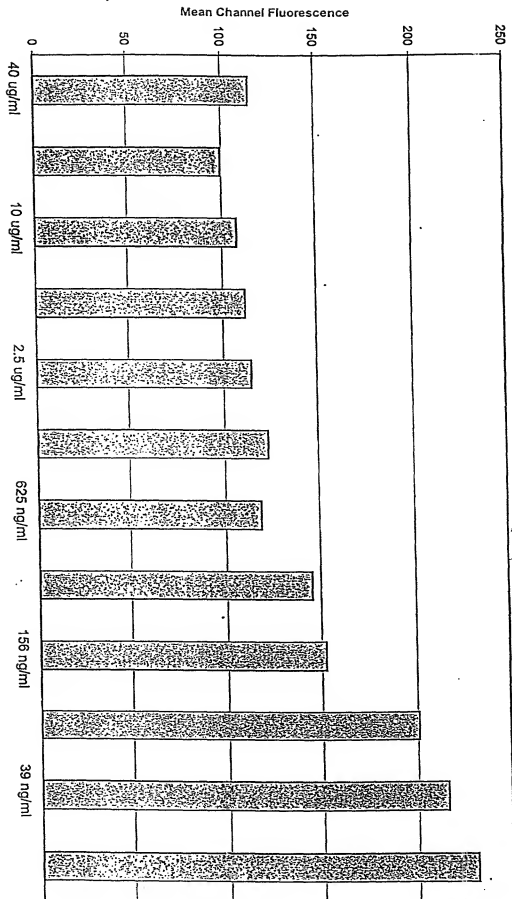
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A

(y-axis: mcf, scale 0 to 500)

Group	Dilution
4 ug Q133E	1:6,400
4 ug Q133E	1:6,400
4 ug Q133H	1:12,800
4 ug Q133H	1:6,400
CH WT	1:400
CH WT	1:800

B

(y-axis: mcf, scale 0 to 450)

Group	Dilution
MF59 CNTRL	<1:50
MF59 CNTRL	<1:50
No Injection CNTRL	<1:50
No Injection CNTRL	<1:50
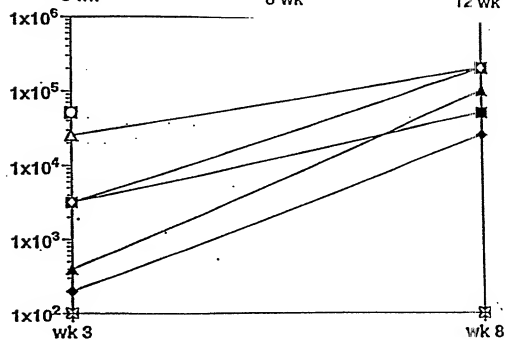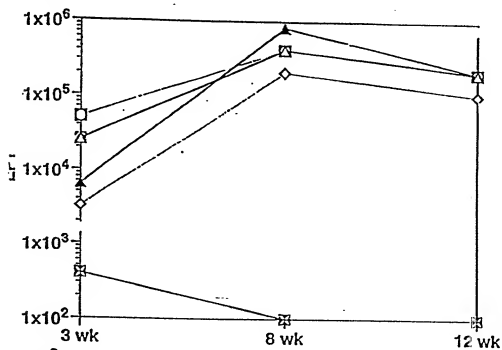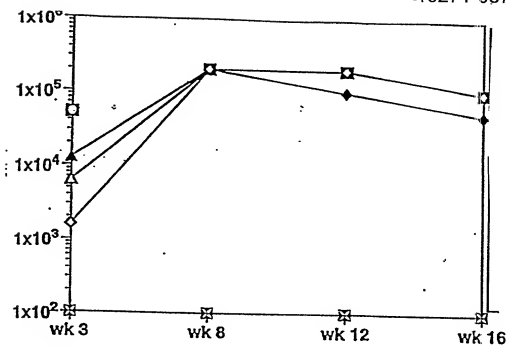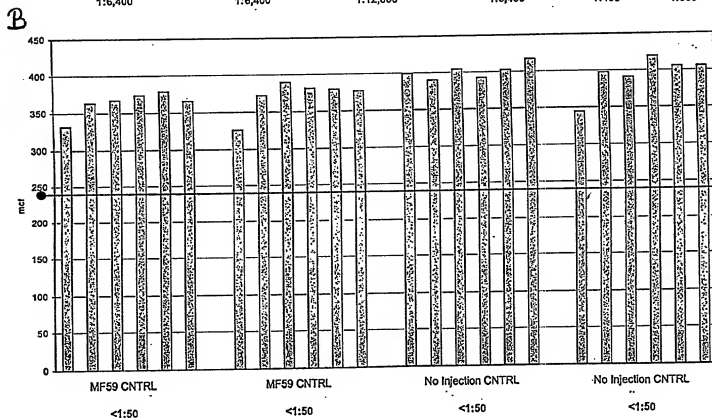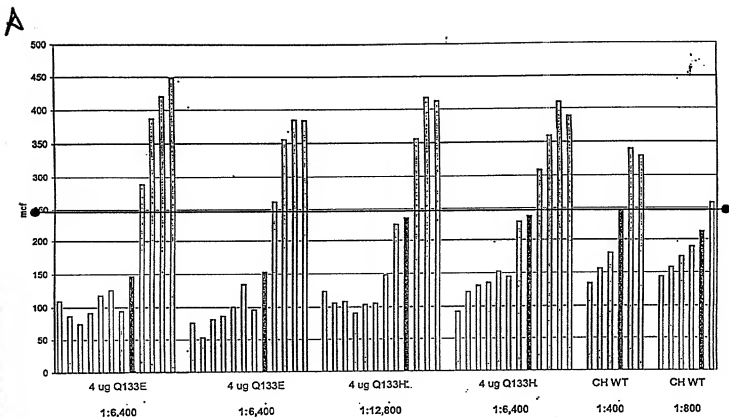
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C
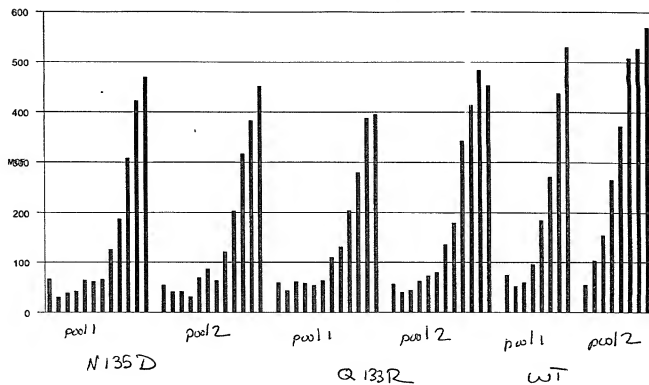
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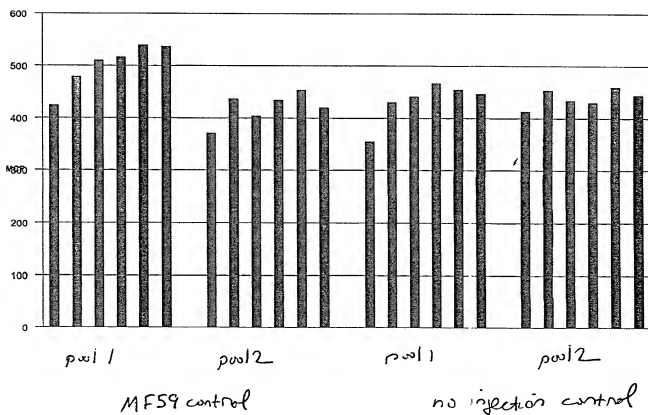
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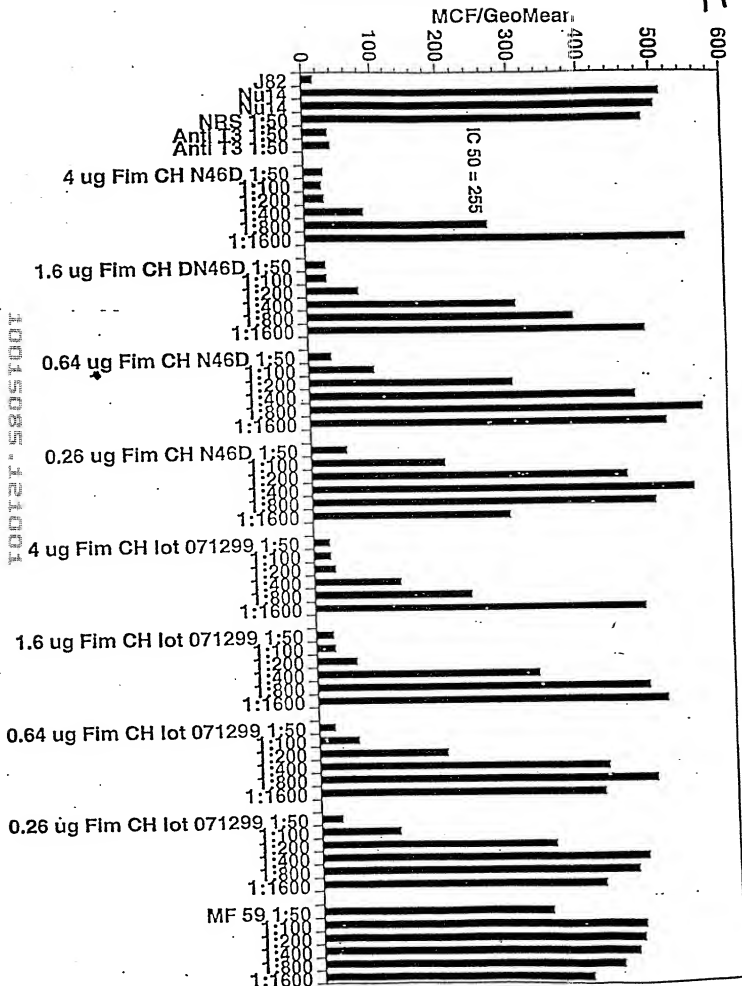
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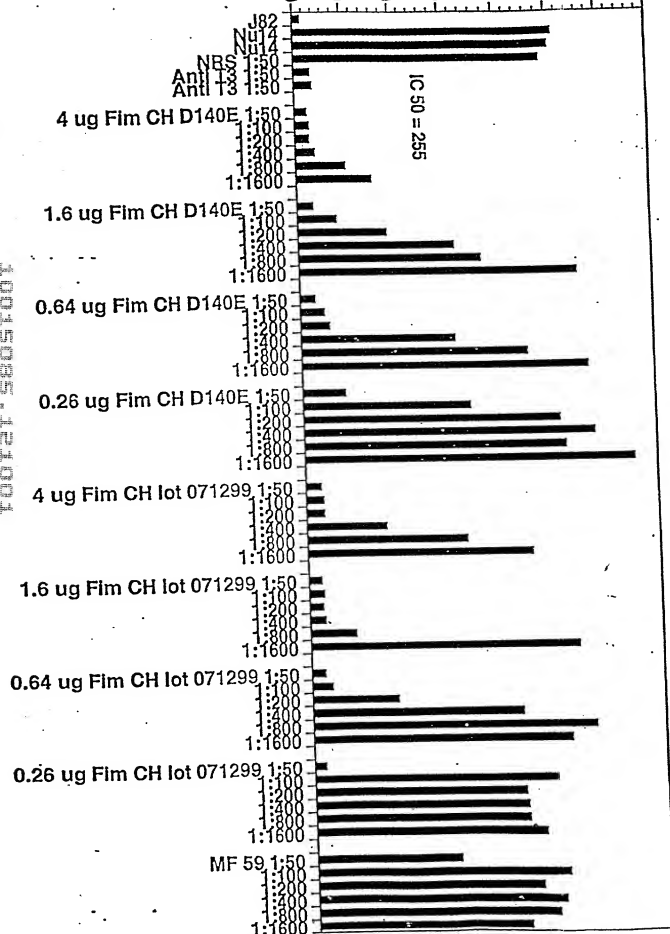
Figure 12
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Figure 12
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Figure 12
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Figure 12
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Figure 13
Sheet 29 of 36

Figure 14
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A

Figure 15
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B
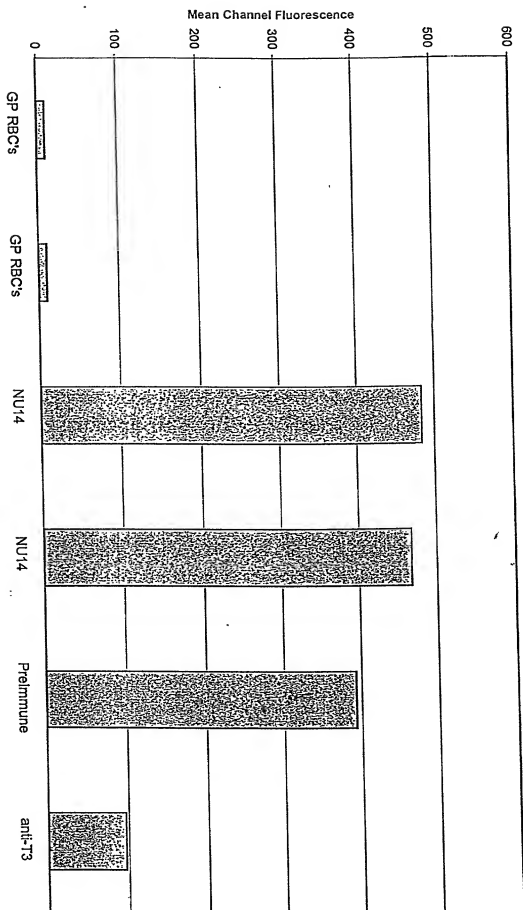
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Sheet 32 of 36
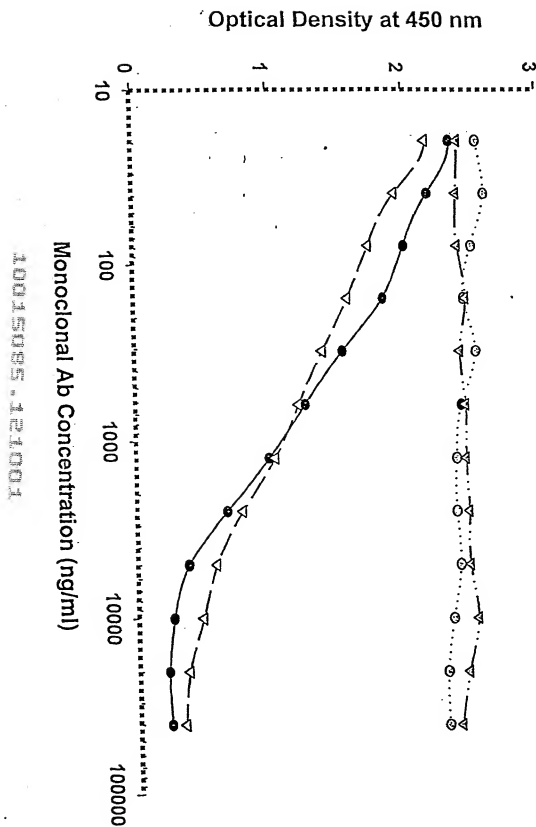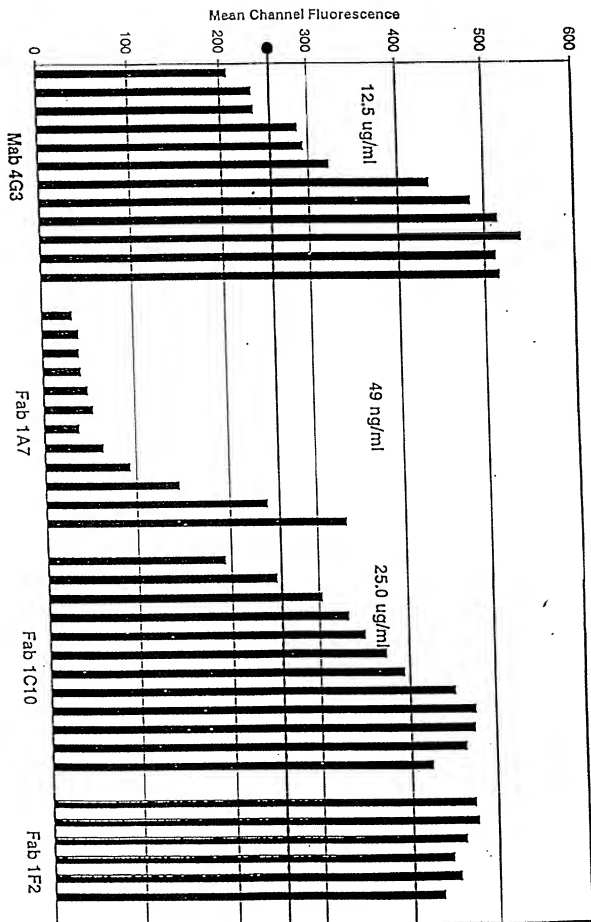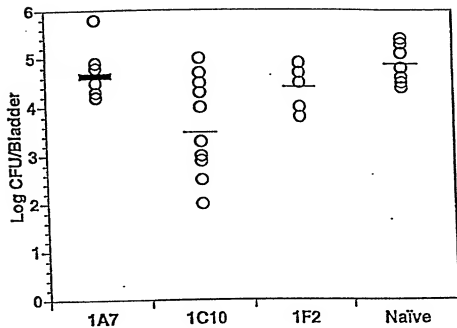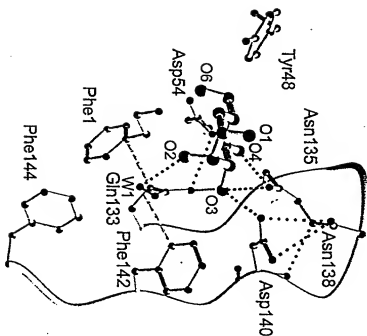
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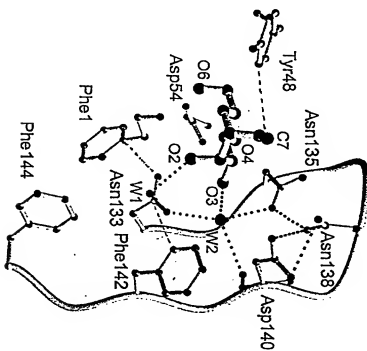
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Figure 19
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